

one of the senators that he thought had some influence to ask for support. So I got a call from a staff man urging me to hire him. Actually, I think someone on my staff had already made an offer and he'd accepted it when I got this call. If I had gotten the call before we had made the offer, I'm not sure I would have offered him the job because that's the way we operated at the Library of Congress. We would never hire somebody with a political recommendation. I suppose we might have if the recommendation came from the chairman of the Library Committee. Then we might have hired him and put him in a place like kicking him upstairs before he started.

Then I also got a call from Scoop Jackson about a young man who wanted a summer job. We interviewed him and he looked good, so we hired him as a research assistant. I guess we trained him well, because he's turned out to be a leader in the water resources field. I'm glad we were able to help him along in his career. It was a summer job for him.

Q: What was his name?

A: I can't remember for sure, but his first name was David. Yes, David Friedman.

Q: You said you got three calls?

A: Yes. It's funny that I remember all this, but I never could understand why officials of the executive branch of the government allow themselves to be pushed around by members of Congress.

Anyway, this other call was from a staff member for a senator that I knew quite well. The caller said that the senator was interested in so-and-so and wanted me to hire him. This was a staff person for whom I didn't have much respect, so I said, "There are no vacancies, but if the senator is really interested, have him call me and I'll talk to him about it." I never got a call back. So it was pretty obvious it was all being handled at the staff level.

I was very careful in hiring the staff. There were probably a couple of mistakes made, but that was inevitable considering the time pressure we were under. Actually, I was primarily responsible only for hiring the top staff people. I hired Howard Cook as my deputy and I hired Ralph Fuhrman as an assistant director, and, of course, Bob Baker to handle the administrative work. After I hired the three division chiefs, I let them pick up their own staffs. But I

would always interview the candidates, and if I didn't think they were making the right decision, I would give them my comments. In a couple of cases they went ahead and hired people that I didn't think were competent anyway, and in at least one case it was a terrible mistake, which was recognized by everyone later. But I think the record shows that we had an excellent staff.

Vic Koelzer brought a lot to the commission. Vic is the one that set up these committees chaired by Harvey Banks and Doug Metzler and people like that, bringing a hand-picked group of top experts together to develop reports. His committees worked very much like the committees of the National Academy of Sciences, and they really produced for us. That was how we got some of the reports done. Then there were internally prepared reports. The report on navigation that Truman Price made for me was a real classic. He made a special copy for me with pictures of nude women sunning on the decks of yachts and things like that that made you laugh. The idea was to show the multipurpose use of waterways. I got a kick out of it, but we didn't leave those pictures in the reproduced copies made for the commission and eventually published.

Truman had a great sense of humor and I think everybody did. He had come to us from Interior. I wasn't able to honor Mr. Luce's idea of not getting people from federal agencies. We had to get people who knew the programs because we didn't have the time to train them. One reason that Vic Koelzer and Lyle Craine worked so well was because they had had federal service in an earlier stage of their careers.

The rule I followed was that we wouldn't hire anybody who was planning to go back to his job in a federal agency. There was a young officer from the Corps of Engineers, for whom I had great respect; he was probably a captain at that time. He came to me and said that if I wanted, he could be detailed over to work for the commission. I know he could have helped, but I decided not to take him up on his offer because he would have obviously gone back to the Corps. We didn't take anybody on detail from federal agencies.

When Truman Price came, he severed his ties at Interior. Later on he went over to work for EPA [Environmental Protection Agency], but that was different. EPA was not even in existence when he came to us. Howard Cook was planning to retire, which he did near the end of the commission's life.

It's hard to say how we got so much done. One of our failings was that the commission didn't narrow things down. They wouldn't let go of anything that we started. Incidentally, the report was unanimous except that there was one dissent on an item where the commission recommended that water rights ought to be only for a set time; in other words, for enough time to amortize the investment, rather than in perpetuity. The commission's recommendation gives the option of reallocating water without paying somebody to give up their water rights. Roger Ernst, as a dedicated Westerner, dissented from that. That is the only dissent in this whole report. Such unanimity was not achieved without an awful lot of work, and believe me, these members worked.

The commission really got started in about January 1969. I worked the last few days of December in 1968. We had 54 meetings, including the hearings, some of which were two days. Almost all of the meetings in Washington were two or two-and-a-half days. We did have a few one-day meetings. Counting all 54 meetings and hearings, the attendance record was something like 89 percent.

Q: Amazing.

A: Just amazing. Due largely, I'd say, to Luce's leadership ability. He did so much work himself that he really inspired everyone else. I understand that he's been like that on every job he's ever had. So I would attribute the success of the commission to his leadership and the hard work of the staff-especially during the preparation of the final report, when the staff was very diminished because we told everybody when they came to work that it was for a set time. About a year and a half before the end of the commission, I set up a schedule of when people were going to terminate their employment and what they had to finish before they left.

With only one major exception that I can remember, they did it. They worked right up to the last day if they had to and finished their reports, I have to particularly give credit to Vic Koelzer. Because Vic was one of our highest-paid people, we had to let him go before he wanted to go. He had wanted to be in on the final writing of the report. He was an engineer who knew how to get things done, and the reports for which he was responsible were in such good condition that we didn't really need him any more. So he left kind of reluctantly, being one of the first staff members we had to let go.

Some of the others had come in and out. Henry Vaux was one of the first ones hired and had gone to the University of California to take an academic position and complete work on his Ph.D. The names don't all come back to me, but others had come in and out. Lyle Craine had gone back to Michigan and had been replaced by Dean Mann, and then later Dean Mann had to go back to his academic job and Gary Taylor carried on there. We had the most trouble keeping staff in the Social and Behavioral Sciences Division. But we had a really good staff and they worked hard, but at the end I had to be the one to put the report into final form.

Howard had a major difference with the commission on the cost-sharing policy on inland waterways. Howard felt that the federal government should pay at least half the cost. The commission's recommendations were blunt. It believed that there is no reason that the federal government should be subsidizing transportation of goods and passengers who should be able to pay their own way. So the commission's recommendation was that only if the waterway was needed for national security should federal money be expended on improvement of inland waterways. I think it kind of broke Howard's heart when he lost an argument with the commission on that subject. So Howard Cook decided to retire; he was 68 years old, and his wife had wanted him to retire much earlier because she had already retired from Woodward & Lothrop. Howard had stayed on because he wanted to help me. He was very loyal to me.

It was near the end of the commission's life, the staff was dwindling, and I had the job of finishing up the report. We had hired an editor from Bonneville Power Administration named Mike Katz, who came in and worked for the commission for about a year. He was a good editor, and I think an awful lot of the credit for the good writing in that report goes to Mike Katz.

When it finally got down to the last few months, I took a few short cuts that I was able to do because I had contacts with the Joint Committee on Printing. The Government Printing Office is supposed to be responsible for printing all government reports. I couldn't see how we were going to get the report done before the beginning of summer if we couldn't bypass the Government Printing Office's red tape.

I had scheduled completion of the report for June, even though we had until September 26 to finish, for several reasons. One reason was that I wasn't sure that we had enough money to run through the summer. We had enough money

for my salary and the secretaries' salary, but not enough to do very much else. The other reason was that I was getting tired and wanted to have some relaxation in the summer. A third reason, which I hate to mention because it sounds crass, is that there was going to be a cost-of-living adjustment in the federal annuities on July 1, and if I were to get on the retirement rolls before then, I would get an increase in my annuity. This was at a time when inflation was increasing and I had two children of college age.

In order to meet my schedule, I had to short cut the Government Printing Office. We had all of the report on computers, so it was going to be possible to print it direct from the tapes. This was in the early stages of computerized printing, but I had investigated and found a commercial service that could use our tapes and go right into typeface. So I went ahead and put the review drafts of the report into the single-spaced form they would have when finally printed. This resulted in reviewers making fewer changes than if you have a double-spaced draft on which it is easy to interlineate and write in changes. So I worked from galley proofs from about the middle of April on.

At that time, you were not supposed to do that. You were supposed to give a copy to the Government Printing Office, and they would prepare the galley proofs. But I had talked to people that I knew on the staff of the Joint Committee on Printing and in the Government Printing Office and made sure that what I did was not going to be wasted. So we prepared the final commission report on galley proofs. Every member of the commission read every page of that galley through several iterations.

It was a big report, over 500 pages, and there are actually 238 recommendations spread through it. I was the only one left, except for Bob Baker and a couple of secretaries, working to get the transcripts of the hearings in shape and organizing the files containing 7,000 or 8,000 letters of comment about the draft report. We had put out a draft in October 1972, and this was in the spring of '73 that I was finishing the report.

I remember getting those galleys back from the commissioners and sitting at the big conference room table with seven galleys spread out before me, with one clean set that I was marking on. I would go over all of the commissioners' changes and incorporate them in the clean copy. There were places where I had to resolve differences in language changes proposed by different commissioners, and then send out another set of galleys when it was on a

controversial subject. I guess I realized that I was the only one could have done that, and so I did it, but I ended up working 80 hours a week or more. I was working all day Saturday and all day Sunday that whole spring to get that report done. With everybody's cooperation we finally got agreement on everything. Then I had the commercial service cut up the galleys and put the report into page proofs mounted onboards, mostly double pages, with spaces for pictures.

I had asked members of the staff to find pictures as we went along, so I had a whole raft of pictures from which to choose. We had pictures from many sources including the Corps of Engineers and the Soil Conservation Service and the Bureau of Reclamation. Every agency was eager to give me pictures because they knew they would get credit. We had been collecting pictures as we went along, but finally, in the end, I had to pick out the pictures and write captions, which Flo Broussard would type up and get to the printers.

Flo stayed with me until the end and I would have never been able to do so much without her. She was much more efficient than I. My other secretary had already left, and we had a very small staff at the end. I finally got the approvals of all the commissioners and got them to sign the front letter to the President and the Congress and had it set up for publication in the front of the report.

When I took the page proofs to the Government Printing Office all mounted on boards, they were somewhat upset, but I told them that because our computer was all set up to move right into typeface, we had done it that way to save money and time because it was the only way we could have it ready for a meeting with the President.

In the meantime, we had set the date for presenting the report to the President. It was to be June 14, 1973. I took the boards over to the Government Printing Office about May 25 and told them that we had a meeting set with the President for June 14 and that we had to have copies by then. It was the day before the three-day holiday weekend. I thought sure that they would start to work on it on Saturday, but apparently didn't even look at it until Tuesday. They put it out for bids on Wednesday. They had several bids and got a company out on New York Avenue to print it. Nobody would ever believe that the Government Printing Office could work that fast, but they did. I can't remember the name of the process—

Q: Offset?

A: No, I'm talking about the pictures. They're all in two colors.

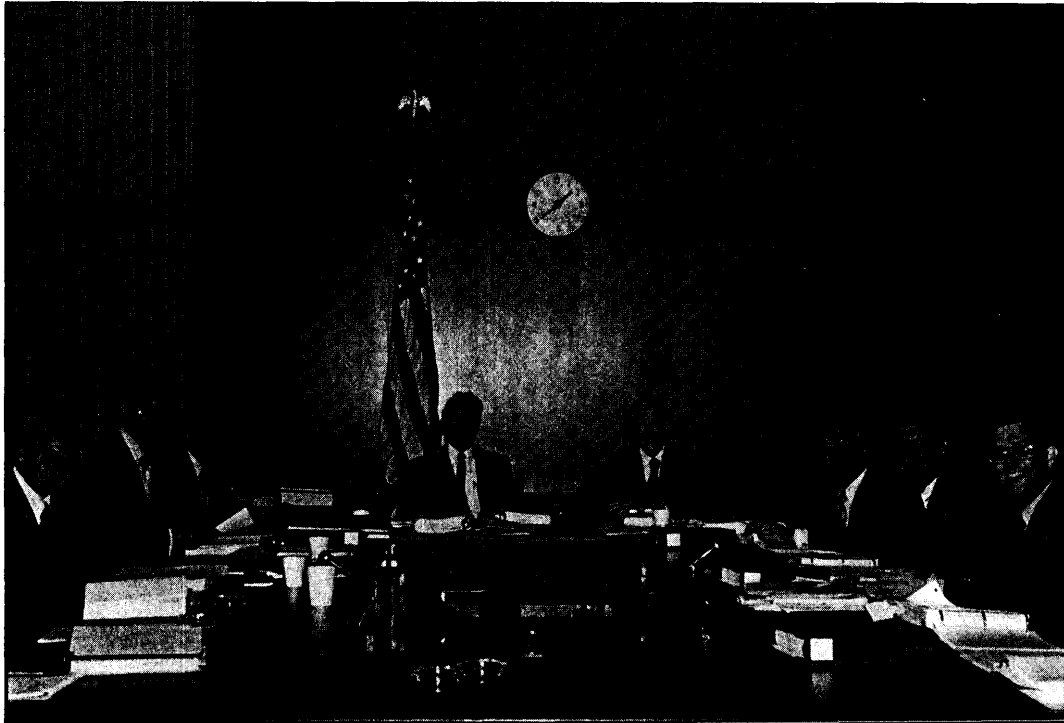
Q: Duo-tint?

A: Yes, duo-tint. There's a blue and a black press run on all of those pictures. Gives a nice effect, and it's much cheaper than color printing. Anyway, it was all ready for them to print when we gave it to the Government Printing Office. Flo and I went over to the printers on Saturday and checked all of the captions for the pictures, which is one of those things that has to be done because they're set separately. By the next Tuesday we had a printed copy of all of the pages, not bound, for us to check before they proceeded with the binding. The next day we had a few paper-bound copies of the report, and on Thursday we got a few tons of reports almost a week before we needed them. But in the meantime, the White House had canceled the meeting. Just a joke-1 told the commissioners that Nixon was so engaged in Watergate he didn't want to have anything to do with anything on his calendar that had the word water in it. (Laughter)

So we never had a meeting with Nixon to present the report. But we did go ahead and schedule hearings on the Hill toward the end of June-By that time the summary report had been written. This was the report which I had been hoping would be the main report, with the big report as the appendix, but the commissioners felt it would detract from the words they had struggled with so long in the main report. The summary broke the study down into the seven themes summarizing the studies, making it more readable in a smaller book which you can hold in your hand instead of the five pounds of the main report.

At the hearing the report was not too well received. Scoop Jackson was flabbergasted, as was Frank Church, that the commission didn't recommend against interbasin transfers. They were shocked because they were sure, now that the commission had two more members from the Pacific Northwest, that it would oppose interbasin transfers. I should have mentioned the second change in the membership of the commission in which Clyde Ellis and Sam Baxter were dumped. Sam Baxter was a lifelong Republican from Philadelphia. He was replaced by Jim Murphy, who had been a Republican National Committee member from Montana. Clyde Ellis was replaced by Jim Ellis, who was the mastermind in Seattle Metro. This gave us two more Northwesterners

and so the balance that Lyndon Johnson has sought in his appointments was completely destroyed. This was another change cooked up in the White House without any consultation with anyone on the commission. I should say that none of the new commissioners suggested any change in the conduct of the study.



National Water Commission, October 1972. James Murphy, Howell Appiing, Roger Ernst, Theodore Schad, Charles F. Luce, James Ellis, Ray Linsley, and Josiah Wheat.

Anyway, the commission didn't recommend against interbasin transfers, and the senators from the Pacific Northwest didn't like it. The commission recommended that if you need an interbasin transfer and it was economically justified, you should undertake it. But the commission did feel that you should make the basin of origin whole. In other words, you shouldn't just take their water, but you should recompense them, either with other projects or in some other way, to make them whole. This puts a double burden on an interbasin transfer, so you've really got to have a good project.

The commission was adamant in recommending that project beneficiaries should pay the economic costs of development, but always put in that you should give due consideration to the government's role in environmental protection. So it's not a rigidly economic report. Charlie Myers would have made it so. He was very rigid on economics, and he said, "If you want to have a scenic river, you've got to have some way to collect some money from the people that look at it." He was more rigid on reimbursement than our economists were.

Q: Let me ask you, before you go ahead with the reception to the report, I want to ask you one more question about the organization of the people who were involved. There were evidently panels that were established too. I presume these were advisory panels on various facets of water resources, everything from the economics of discounting to weather forecasting or whatever. What role did these panels have? Were they frankly cosmetic? Did they have substantive roles? What purpose did they serve?

A: I mentioned that earlier but I didn't call them panels. They were study committees set up to produce reports. Vic Koelzer set one up on planning and it was chaired by Harvey Banks. That's what you're referring to, isn't it?

Q: Okay.

A: And we had an environmental panel on which we had Bostwick Ketchum and George Woodwell from the Wood Hole Laboratory. It was a good environmental panel. We had a good pollution control panel headed by Dwight Metzler of Kansas. They were not just advisory because they were writing the background reports for publication. The environmental panel didn't do a major report, but it helped us to formulate a contract with Charlie Goldman out at Davis, who produced the big environmental report.

Q: Were the panelists paid or did they just donate their time?

A: I think they just donated their time, just like they would have for a National Academy of Sciences committee.

Q: Well, if I understand you correctly, then, your reports were generated three different ways: internally from your own staff, by contractors who were hired on contract, and finally through committees of experts. Is that right?

A: That's right.

Q: Okay, thank you, I just wanted to clarify that.

A: Well, it took a lot out of me and I was glad when it was over. I needed a rest. So I drafted a letter for Chuck Luce to send me on June 28th, telling me my services were no longer required because the reports were finished and they'd had the first hearing. This put me on the retirement rolls on June 29th, I didn't get any money for a long time, but I did get the benefit of what I believe was a percent increase effective July 1.

Q: You never considered going back to the Library of Congress?

A: No. For one thing I was at the executive level IV, and it would have been a step down. I didn't really want to go back, but if somebody had twisted my arm and said, "Ted, we really need you," I might have. I think I told you I've never gone out to apply for a job after the first time with the Corps of Engineers and taking civil service examinations to become a junior engineer. I guess I really didn't know how to get a job.

My wife told me that I should get a job in some completely different field to unwind. She thought I was beat from that last three months of 80-hour weeks. She could see what it had taken out of me, and I would have never been able to do it if it hadn't been for the support that she gave me.

One thing happened that I regret. When my elder daughter was a teenager, we had time to go camping and climbing together and I took her out West on mountain climbing trips several times. We did a lot of things together. But during this five years of the water commission, my second daughter became a teenager and we didn't have time to do as many things together. I never got to take her out West on a climbing trip. Of course, she did it all on her own and ended up as the chairman of the Explorer Scout Troop which did a lot of caving and climbing and bicycling. This is the co-ed upper level of the Boy Scouts. She did all that on her own. She didn't need me. But still I regret that

I was working too hard and didn't get to know her as well as I would have liked to.

There was one more hearing on the National Water Commission report in mid-July when the federal agencies testified. At the hearing on June 26th, just the commissioners had testified, and it was all sweetness and light except for what seemed to be amazement that they hadn't really come out foursquare against interbasin transfer. The hearing had been chaired by Frank Church who had been quite upset by earlier proposals to take water out of the upper Snake River to augment the flow of the Colorado River.

At the July hearing, representatives of the Water Resources Council and the federal agencies testified. My recollection is that they mostly hadn't had time enough to study the report, and the hearing concluded with the committee asking the Water Resources Council to respond to a series of questions.

The Water Resources Council was required by the National Water Commission Act to send comments on the report to the President and to the Congress. So many commissions had written reports which were sent to the President, and that's the last you ever hear of the report. There was a different provision governing this commission, which I had suggested to Wayne Aspinall when his committee was considering its authorization. That may have also been in the earlier bill introduced by a congressman from California, which I had worked on. The intent was to make sure that it got to the Congress. But it also required that the President comment on it and send his recommendations to the Congress. This was never done, and the report remains in limbo to this day.

Incidentally, we printed 9,000 copies and sent one to every congressional office. We also sent copies to the agencies downtown and to everybody that had been on any of our panels or had worked with us. I think we distributed about 2,000 copies that way. The Government Printing Office sold the other 7,000 copies and later reprinted it. When they were all gone, the plates were loaned to the Water Information Center on Long Island and they reprinted it.

One of the interesting things was that when we went to mail those copies out, at least five tons of reports, our local post office wouldn't take them; we had paid our postage bill for that fiscal year on the basis of the preceding fiscal year. So when all of a sudden we were dumping five tons of reports on a little neighborhood post office, they wouldn't take them. Bob Baker then found he

could take a bag of reports to each of six or eight different post offices every day so we could get the reports mailed. Just another example of how resourceful the staff was.

Q: You talked about how the Senate at least, and I presume that some people in the House too, reacted rather negatively to some of the recommendations. It strikes me that maybe '73, '74 were not particularly good years for commissions and studies. I'm referring to the fact that in '74, Congress, as I understand it, tells the Water Resources Council that it's not doing a particularly good job on principles and standards. I don't know whether you can shed any light on this or not, or if it at all relates to the National Water Commission Report, but as I mentioned earlier, in 1970 congressmen told the Water Resources Council to come up with principles and standards based on the four accounts, and then in 1974 Congress goes back and asked the Water Resources Council in Section 80(c) of that act to basically take a new look at the whole water resources field.

Was there a fair amount of disenchantment with the lack of emphasis in the executive branch on regional development, on social well being-on these kinds of things? Can you give me any background on any of this?

A: Well, I wouldn't put it that way. I think the real disenchantment was because the project reports weren't flowing up to Congress the way they used to, with an omnibus bill every two years. 1970 had been the last one, and there hadn't been enough reports to even think about an omnibus bill in '72. As I recall, the '74 act was really just basic authorizations and authorizing more studies. The lack of new projects, I think, is what was disenchanting Congress, and the agencies were saying that they couldn't get the reports out under the principles and standards.

Also, NEPA [National Environmental Policy Act] was in full effect by the time, which put an added burden on the agencies to do environmental impact statements, and there were lawsuits holding up projects. I think that's what disenchanted Congress. And I'm sure that agency people, in talking to Congress or talking to local interests, were saying, "We can't do this because of NEPA; we can't do that because of the principles and standards." In my opinion that's what disenchanted Congress.

I don't think it had anything to do with the National Water Commission report. In fact, I never got any real recognition about this report from the House side except that I got a very nice letter from Wayne Aspinall saying, in effect, "You did a great job." Actually, I got a couple of letters like that from members and staff people on the Hill who knew me. But they never had a hearing on the House side as far as I know.

But the staff read it and quoted it in committee reports on bills from time to time.

Q: I don't like to ignore the report, but I'm just trying to get things up-to-date here for a second. By this time, the Water Resources Council's talking about these two principal accounts, national economic development and environmental quality, and it has been argued to me by people who are still in government that Congress was not happy with that emphasis, that continued emphasis on those two areas, and that there were people in Congress who felt very strongly that there had to be much more of a regional focus in water resources and also more emphasis on this social enhancement value. Some of this was in the Appalachian Region project in 1960s. Do you have any response to that?

Environmental Studies Board, National Academy of Sciences

A: No, because I was no longer involved with the Congress. After I left the commission, I went to the National Academy of Sciences working as executive secretary of the Environmental Studies Board, of which Gilbert White was the chairman at that time. Later, I became deputy executive director of the Commission on Natural Resources of which he had become chairman. So my orientation at that time was completely different. We were not strictly geared to the Congress so much, but more to federal agencies that ask you to make studies. The project for which the academy had hired me was to provide assistance to the Rockefeller Commission. The name of it was the National Commission on Water Quality. It was set up by the Water Pollution Control Act amendments of 1972.

That was my first principal substantive staff project at the National Academy of Sciences, but then I also was given administrative responsibility for a major study financed by EPA on the use of scientific and technical information in environmental decisionmaking. This was a big project, another \$5 million

project that was spread around through other parts of the academy. I became so engulfed in the administrative work that I wasn't able to do much substantive work.

It was my job to keep those studies going, plus a lot of other different studies that were under way, and also to raise money for new studies. I guess that's why I wasn't able to keep up with what the water resources agencies and the Congress were doing. I did get involved in the Potomac River studies for the Corps. This was the study of the potential reuse of the Potomac estuary for water supply through development of a water purification plant at Blue Plains. The other part of that was an overall study of the water resources requirements of the Washington metropolitan area.

I had worked out the legislative authorization for that study with Senator Charles Mathias's staff. It was needed because Sixes Bridge and Verona Dams were authorized in the '74 act, but before you could move into construction, you had to do these other studies to show that they were the only way to get water for the Washington metropolitan area. I was at the academy when that came up and we drafted some language to permit the Corps to ask the National Academy of Sciences and the National Academy of Engineering to make the studies. I was involved in getting the legislation, but when it came before the Environmental Studies Board for approval, they turned it down because the board felt that it was not an appropriate study for the academy. Most of our studies were of a more generic nature. Another part of the National Research Council, the Assembly of Engineering, agreed to do it and eventually it led to the creation of the Water Sciences and Technology Board to do studies like that.

So I was working on all kinds of things like that, and I wasn't really following water policy in the way that I had for years, except, of course, water pollution control policy, which was the purpose of the work for the Rockefeller Commission.

Q: Did you get involved in restudying the Corps' original Potomac report-the famous 16-Reservoir report that ran into a road block.

A: No. I did not, but that's where they got the proposal for Verona and Sixes Bridge.

Q: You also were a consultant for the Conservation Foundation at the same time, were you not?

A: No, that came later. But first let me tell you how I got to the National Academy of Sciences. This was another one of these things that just happened to me. It was all due to Dick Carpenter, who had been one of the people with whom I had been involved in bringing into the Library of Congress as one of our senior specialists in science. Before he came to the Library of Congress, he had not been in the government at all. He had been working as a chemist with the Callery Chemical Company, or Gulf Oil, or somewhere in industry. He was called to my attention by Carter Bradley, who was on Senator Mike Monroney's staff, who told me that he had met a young man from Oklahoma who wanted to work in the policy area. And that was my introduction to Dick Carpenter. We didn't usually consider hiring anyone recommended by a member of Congress, but I agreed to let our search committee interview him. We were staffing our Science Policy Division and the committee interviewed him. He was the best candidate so they recommended him. So we did hire him as one of our senior specialists in the scientific policy area.

That reminds me of another example of where I goofed in 1967 or early 1968. Bill Van Ness from Senator Jackson's committee came to me and said, "We're thinking about introducing legislation to require an environmental analysis of projects before they can be recommended." Bill Van Ness was staff director of the Senate Interior Committee. He showed me their draft bill and told me he'd been working with Lawrence Rockefeller and other prominent people in the environmental movement and asked for my help.

I looked at what he was proposing and concluded that it would slow down the authorization of water projects and that the Congress would never enact it. So I think I said something like, "The Congress is never going to pass legislation like this because it'll essentially bring the water resources program to a halt." So I didn't agree to work on it with Bill Van Ness but turned the assignment over to Dick Carpenter, thinking that it wasn't important enough for me to take on. I was still the senior specialist in engineering and of public works but I was also the deputy director of the Legislative Reference Service. I just didn't think that legislation was going to fly.

But Dick Carpenter took on the assignment, working with Bill Van Ness and others. They set up a colloquium which made a good record in favor of the

legislation. By that time we had another more junior young man on our staff whom we had hired away from the United Nations Development Program in New York. This was Wally Bowman. He and Dick Carpenter worked with the congressional committees on both sides providing the kind of assistance that the Legislative Reference Service used to provide routinely before the exponential proliferation of congressional staff following the enactment of the Legislative Reorganization Act in 1970. So Dick and Wally had important roles in the enactment of NEPA which I think was signed about the first day of 1970. By that time I was over at the National Water Commission.

Q: Did you ever meet Keith Caldwell?

A: Yes. Keith Caldwell was one of the people who considers himself to be the prime mover in getting that law through. Keith was a friend of Dick Carpenter's and Wally Bowman's and was involved with them in the early stages, maybe before they got involved. Keith later became one of my good friends. He was a member of the Environmental Studies Board, but before that I think he did some work for the National Water Commission.

Anyway, my judgment was that the NEPA bill was not going to go anywhere, and I was so completely wrong that I probably shouldn't even mention it. But Dick Carpenter did a great job in connection with the NEPA authorization, and that may well be why he was selected by the National Academy of Sciences to direct the Environmental Studies Board. So that gets me back to how I got to the National Academy of Sciences.

In early July I was cleaning out my desk at the National Water Commission office when I got a call from Dick Carpenter. He was at the point of trying to get a study for the National Commission on Water Quality organized, and he wanted my suggestions for the names of people who might be willing to serve on the academy's committee.

Rockefeller and the other members of the commission had been appointed, and I believe Ron Linton had prepared a prospectus for accomplishing the commission's work. Fred Clarke, who had just retired as Chief of Engineers, had been appointed as executive director of the commission and Joe Moore was the study director. They had just started to dicker with the academy for the establishment of a study committee to provide consultation services to the commission. Dick Carpenter had not had much experience in the water

pollution field. He was a chemist and had been more involved in environmental policy, which had led to his appointment as executive secretary to the Environmental Studies Board. He had just been made executive director of the new Commission on Natural Resources, which at that time encompassed the Environmental Studies Board, Agriculture Board, Oceans Board, Radioactive Waste Board, and Minerals and Energy Board covering the whole, broad, natural resources area. So he was swamped with work.

When he called me up to ask for my help in finding people to work on this study for the Rockefeller Commission, I gave him some names of people who I thought would be competent to serve on the committee. At the end of the conversation Dick said, "How's everything with you?" And I told him that my work with the National Water Commission was finished, that I had applied for federal retirement, and that I was going to do consulting work. Actually, I already had a few academic things lined up, such as giving a short course out at Berkeley and some lectures at the University of North Carolina and a few speeches. But I hadn't given my future much thought because I needed to rest for a while after the intensive work to close out the commission. I also had a mountain climbing trip to the Mount Robson area in British Columbia scheduled for the latter part of July. And there was still one more hearing, the hearing with the government agencies on the National Water Commission report scheduled for July 17th. A few days after that I was planning to leave for Mount Robson.

So when Dick asked me if I would come to the National Academy of Sciences to handle the water quality study, I responded negatively. I told him I was too weary to take on that kind of a job. Dick persisted and said he would talk to me again when I got back from the climbing trip.

It was a great outing with a group from the mountaineering club at the State University of Iowa. But after a lapse of several years during which I hadn't done much climbing, the mountains seemed to have gotten a lot higher than when I was in my 30s and 40s and doing a lot of climbing. We were camped at about 6,000 feet at the northeast side of Mount Robson. We had to walk in about 16 miles to get there, the peak went up to over 12,500 and was full of glaciers on that side. To climb Robson, the easiest way you had to kind of circle around the mountain to ascend the peak from the south and it was a two-day trip. All of the other peaks in the vicinity were about 10,500 feet or more,

which made for a long day. At least for me, 4,500 to 5,000 feet is a long climb.

I made a few climbs and was getting relaxed, when one day near the end of the trip-it was a two-week trip-I slipped on the way down from a peak. I was off of the climb, off of the snow and rock and steep part of the climb, walking down the trail, but I slipped and almost fell, twisting my knee and, in recovering, twisting my back. The next morning I was practically a cripple, 16 miles from the road. There were two doctors on the trip. They put on hot compresses and gave me some pain killers, and after I rested for a few days I could walk with some difficulty. The doctors had a big debate. One doctor thought I ought to get a horse to ride the 16 miles down the trail, and the other doctor said it was the worst thing you can do if your back is bad.

I had to make the decision and I compromised. I rented a horse but I started walking early in the morning so I could get across the streams before the snow started to melt. And I got down off the really steep part of the trail, which would have been brutal riding on a horse, and I walked about 12 miles before the pack train caught up to me with the horse that I had engaged. So I rode the last four miles. Then I rode down to Banff in the back seat of a Chevrolet Monte Carlo coupe all crammed up with luggage. When I got to Banff, I could hardly walk, and when I got home after sitting on an airplane, which is never good for a tall person, I was really a cripple. I was making phone calls to get work lined up and rarely ever got through on the first try and I didn't have a secretary and Dick wanted to talk to me again.

So that's how I came to work at the National Academy of Sciences. Dick made me an appointment to meet with John Coleman, who was executive officer of the National Research Council at that time. John Coleman had tried to hire me for doing the academy's study for President Kennedy back in 1961, but I couldn't go over there because I had been away from the Library for so long working on the Senate Select Committee staff. I had been on some other academy committees so John knew me, and for him it was just a question of when could I start work. I was barely able to hobble around, but I started work about the middle of August. And then it turned out that in addition to running the water quality study, I had to be the executive secretary of the Environmental Studies Board for Dick to find enough money to pay my salary. So I ended up with a lot of other administrative responsibilities for things I didn't know much about.

We had air quality studies, including one for the Senate Public Works Committee. This was an antecedent to the Air Pollution Control Act. That study was underway when I came on board in 1973. We did it for Senator Muskie and I remember that Leon Billings, his staff aide, was furious when the academy hired me because he held me responsible for what the National Water Commission had said in its report which rejected the technological fix of the '72 Water Pollution Control Act and the zero discharge goal. The committee had just recommended continuing a water quality based approach, with a polluter pay philosophy.

Commission on Natural Resources

I went to work at the National Academy of Sciences on a two-year assignment and I ended up staying there 10 years. I had a great deal of interesting work, not so much in the water resources field, although a lot was related to water. I was in charge of the study on federal water resources research which we completed just before the Reagan administration decided to abolish the agency that had recommended it.

I was working with a lot of the same people I had worked with over the years. Gilbert White was chairman of the Environmental Studies Board and then became chairman of the Commission on Natural Resources. I was deputy executive director to Dick Carpenter when he went off to teach at Dartmouth for a semester and I had handled his work whenever he was away. So when he resigned to take another position, I became acting executive director of the Commission on Natural Resources for about a year and staffed the selection committee that was appointed to find a new executive director. It took about nine months or so before we ended up hiring Wally Bowman with whom I had been associated at the Library of Congress.

I was involved to a certain extent on the selection committee, but I didn't make the decision to hire him. That decision was made by Phil Handler. I remained as deputy executive director. I enjoyed the privilege of working as deputy to Dick and Wally, two people who had formerly worked under my supervision. We got along fine together and there was a great deal of mutual respect. I was delighted to have them take the primary responsibility, but I was in a position to fill in for them whenever it was necessary. We did a lot of good work together.

Q: Tell me about this study that you say Jamie Whitten requested on science and technology and the impact on water resources or something of that sort? Can you tell me? That sounds like an interesting one to me.

A: Yes, it was very interesting. Jamie Whitten wrote it into the appropriations act for EPA, \$5 million. EPA was directed to contract with the National Academy of Sciences for a study of how scientific and technical information is used in environmental decisionmaking. While he was at the Legislative Reference Service, I think Dick Carpenter had been requested to help Jamie Whitten develop material for his book called *That We May Live*. This was a stirring defense of the use of pesticides to keep up agricultural production. Knowing that Dick would be in charge may be what led Congressman Whitten to request that the study be done. I don't know whether he came to Dick to get help with the wording of the legislation for the study, but usually the members would consult with us before they would write legislation. We had to tell them that the Congress could not direct the academy to do a study because the academy is not a government agency. It's an independent corporation, not for profit, created in 1863 and chartered by the Congress.

Anyway, the request was directed to us and Dick and I developed a very good rationale for the study. We proposed about a ten-study program, including generic studies in areas like research, decisionmaking, and manpower, and a number of specific study areas like noise pollution and sludge management. There were several others that I don't remember. All of these studies would be done by committees under general control of the Commission on Natural Resources through a master steering committee which would be directing the whole study and would put together the final summary report.

At that time, \$5 million would pay for a big study. It was probably about 10 percent of the National Academy of Sciences' annual budget. Although it was not a one-year study, it was a big study and the Commission on Natural Resources was brand new. It had just been set up for a short time. This was Phil Handler's reorganization of the National Research Council as the operating body of the National Academies. It was divided into four commissions and four assemblies-assemblies being disciplinary oriented and commissions being multidisciplinary.

There were some clashes obviously because you can't divide the scientific world up that way. So Phil Handler, even though he had a great deal of faith

in Dick Carpenter, decided that he didn't want to let this new little commission, which had a total budget of only about \$5 million, take on the whole \$5 million study for the whole academy which cut across the interests of other units. We argued against the decision but we lost, and a decision was made to have an overall committee with one representative from each of the eight commissions and assemblies-or maybe just seven of them, because one of them was international.

The first thing they did was throw out our rationale, which I believe was a rational basis for the study, and let each group propose a study. Just by coincidence it happened that there was one study for each of the commissions and assemblies that was involved. It's somewhat like what happens when you write an omnibus bill with a number of members on the committee and just by chance you happen to have a project in each member's district. So that's the way that study was done.

We lost control of the overall study, but the Commission on Natural Resources and the Environmental Studies Board did have the major role because we had the overall decisionmaking study, which put it all together, and we had the research study. It was a very interesting study. At the beginning I kept meticulous files on how it was being done, which soon filled several file drawers. The amount of paper you can generate with \$5 million is just unbelievable!

Q: Was there one specifically on water quality?

A: No. But there should have been. By that time we had a contract with the Rockefeller Commission and Joe Moore, the study director, was enraged when he found we were talking about the possibility of including a study of water quality. The executive director of the Rockefeller Commission, Fred Clarke, who was a member of the National Academy of Engineering, didn't think there would be any problem, but Joe Moore thought it would be a conflict of interest. He even objected to our having a study dealing with municipal sludge management because he felt that the National Commission on Water Quality should be the only entity working on any aspect of water pollution control. So we didn't include a study on water, but we did have the one on municipal sludge management. It was chaired by Harvey Banks, one of three studies that stayed in the Environmental Studies Board.

The Whitten studies led to what might be characterized as a dogfight within the National Research Council representing the bones that the dogs were fighting over. In the end, the money was pretty well spread through the organization. Having a committee representing organizations instead of disciplines is not the way the academy usually does things, so I'm not really too proud of how that \$5 million was spent. However, there were some good reports made; a series of 10 reports were published. Whether it made Jamie Whitten happy or not, I don't know. A man like Jamie Whitten probably never paid much attention to them.

Q: Why don't you continue with what you did after you left the National Academy of Sciences. When did you join the Conservation Foundation? Was it when you were still with the academy?

A: No, but let me continue with what #happened as they reorganized. When Frank Press, who had been a member of the Commission on Natural Resources before he became President Jimmy Carter's science adviser, was elected to the presidency of the National Academy of Sciences in 1981 which made him chairman of the National Research Council, the work was slowing down. There had been a lot fewer contracts during the Carter administration because we were perceived as being partial to industry. I remember one official of the EPA telling me, "I'm not going to piss away any more money on the National Academy of Sciences."

I had been quite busy with a study on water resources research, of which Bill Ackermann from Illinois was the chairman. It was an analysis of the Office of Water Resources Research's proposed five-year plan, which they drew up toward the end of 1980. We got our report out in January 1981, but nobody was interested. They never even put it on the shelves with other unread reports because that's when the Reagan administration decided to abolish the Office of Water Resources Research. There weren't going to be any shelves!

There didn't seem to be any influx of studies coming in from the Reagan administration, probably because, by that time, we were perceived as being partial to environmentalists.

Anyway Frank Press decided to reorganize the National Research Council staff. For the lower work load, the administrative structure may have been considered top heavy. The work of the Commission on Natural Resources had dwindled

from about \$5 million a year down to about \$3 to \$3.5 million a year, which hardly justified having a separate commission. So he decided to combine natural resources with mathematics and physical sciences into the Commission on Physical Sciences, Mathematics, and Resources. In essence, Wally Bowman's job and my job were abolished.

They wrote Wally Bowman a letter saying that his job was abolished and gave him a pretty nice golden handshake as they said good-bye. They even paid the fee to an outfit that tried to help him get another job. But Wally didn't need that kind of help. He helped Gus Speth write a proposal to the MacArthur Foundation, and when it was funded, he became the administrative assistant director of the World Resources Institute.

Wally, of course, was well known by everybody in the environmental field because he had been the executive director of the Conservation Foundation and had been involved with the NEPA authorization when he was at the Library of Congress, so he was a big help to Gus Speth. The first grant was \$14 or \$16 million from the MacArthur Foundation, and Gus raised a lot more money.

I never got any official notification that my job was terminated. I stayed on the payroll and nobody ever told me that my title was changed. But later, in what I thought was an unusual way, in a memo to the whole staff, Frank Press announced that I was going to be involved in organizing the water resources activities for the new commission.

Commission on Physical Sciences, Mathematics, and Resources

Q: Excuse me, which new commission?

A: The new commission was the Commission on Physical Sciences, Mathematics, and Resources, CPSMR. They changed the whole organization around and eliminated some of the jobs, and I was given an allocation of funds to try to develop a board on water science. In the meantime, the Potomac River studies for the Corps of Engineers were nearing completion in the Water Technology Board of the new Commission on Engineering and Technical Systems, CETS, and they decided they were going to create a board on water technology.

Earlier, I think I told you, the reason that we hadn't done this study in the Environmental Studies Board was that the study of the water purification plant and of the Washington water supply was considered to be technology, so it was taken over by the Assembly of Engineering. So we started down the road toward having two boards, which didn't make much sense to me. But it soon turned into a bureaucratic struggle. Bob White had become chairman of the CPSMR, and Guy Stever was the chairman of CETS. Neither one would give an inch, and I just couldn't get them to agree on one board. Then letters started coming in from people like Gilbert White and Tom Malone telling Frank Press that there was no way to separate water science from water technology. Finally, enough people complained about the idea of splitting water technology from water science that Frank and his executive officer, Phil Smith, agreed that we would have one board and it would report to both commissions.

I stayed on for another year or so as the CPSMR member of the Water Sciences and Technology Board staff. We called it the WSTB, instead of the Water Resources Board so we could call it "WASHTUB. " I stayed on, working three days a week because there wasn't enough work to keep me busy more than that, until I was 65 years old. I guess I felt as if I'd been kicked upstairs, but I didn't really want to take on any new responsibilities.

Also, I had bought a sailboat a year earlier and had gotten a Coast Guard captain's license so I could take paying passengers. My return to sailing really went back to my memories of the 1973 trip to Mount Robson when my legs had given out and a trip to Switzerland in 1977 with the Seattle Mountaineers on which I had not been able to climb any of the high peaks because of the deep snow. I do love to get to the top of high mountains. Life is so simple when you get to the top of a mountain; there's only one thing to do and that's to go down. And it's so easy to make that decision.

So I had decided to return to my teenage passion for sailing which I started in a big way by buying two boats for chartering. This was facilitated by the Reagan tax philosophy which permitted use of the accelerated cost recovery system, so that it was financially advantageous to buy a boat rather than to keep on chartering. It worked out so well for the first boat that I bought a second boat and decided that sail boat chartering would be my new career. That's why I'd gotten my Coast Guard captain's license so I could make it a business and spend a lot more time sailing.

One of the first major trips was when I sailed a group up to a meeting of the WSTB at Woods Hole. There were four of us who were going, we were all good sailors, so we sailed the boat up to Woods Hole, which is an ocean passage. In the fall of 1983 I planned to take one boat down south to charter it out of Fort Lauderdale so this was another rationale for retiring from the academy.

I also hoped to spend more time doing things with my wife who always wanted me to just stop work because with the possibility of an annuity from the academy and the federal annuity, I didn't really have to work for pay. She also thought it was great for me to get some relaxation on the sailboat, although she was never interested in sailing.

Q: Where do you keep your boats?

A: Both of them are now chartered out of Annapolis. When I took that boat south in 1983, I chartered it through a broker in Fort Lauderdale. We had already booked one charter for \$3,600 for four weeks. That was a very nice fee, even after the charter agency took 35 percent. So I thought it would pay to take it down south. But the competition was very stiff and we only had a couple other charters, so I didn't take the boat down anymore.

But it was fun taking the boat south in the fall and bringing it back in the spring via the Bahamas. I also took one charter party to Key West. We had planned to go to Fort Jefferson in the Dry Tortugas, but there wasn't enough time.

National Groundwater Policy Forum, Conservation Foundation

While I was on the ocean in the spring of 1984 bringing the boat back from the Bahamas, my wife started to get calls from Governor [Bruce] Babbitt who had agreed to chair a groundwater policy forum for the Conservation Foundation. And that's when I got involved with the Conservation Foundation. Babbitt never could understand why my wife couldn't get in touch with me. But I finally got his message and got in touch him, and he asked me if I would be the executive director for the National Groundwater Policy Forum. After I read a lot of material and talked to Bill Reilly, I agreed. Bill Reilly had been on the Commission on Natural Resources and I knew it would be a pleasure to work with him. I also knew Toby Clark, who had been at EPA before he came to

work at the Conservation Foundation, and I knew I would enjoy working with him.

It turned out to be a lot of fun, and in a way I was glad to be back at work on a policy study. I was only supposed to work three days a week, but I ended up working a lot more. The commission met only a half a dozen times; we had three field hearings and frequent staff meetings. I think we did a lot of good work in evolving a policy which would take the primary responsibility for groundwater out of federal hands and give the primary responsibility to the states with action to be taken by local governments and the private sector.

Governor Babbitt was a good chairman, but he didn't always follow the script we prepared for him. We proposed a lo-point program under which each state would have a program for managing its groundwater, starting with mapping of aquifers, setting ambient standards, and coordinating groundwater with surface water.

Conjunctive management is what it is called, but we also stressed managing groundwater with other natural resources, a much broader concept. One of the big fallacies in resource management is that we've never really had an overall look at resources. This was one of the places where the Conservation Foundation has taken a leadership role: multimedia environmental management. This was where the Congress has been led astray because the federal agencies have never coordinated programs for water pollution control, air pollution control, and solid waste management. Sometimes the programs are in the same committee and sometimes they aren't.

The Conservation Foundation has done work trying to remedy that situation. The modus operandi has changed from when they were funding Leopold and [Thomas] Maddock and Hoyt and [Walter] Langbein to do studies. Now they are doing most of the studies with their own small staffs, financed with grants.

The groundwater policy study took a little bit longer than we expected. It was supposed to be about an 18-month study, but it was almost two years before we completely finished. We had put out the draft report and gotten back comments and were revising the draft when I got a call from Ronco Consulting Corporation, which had a contract with the USAID [United States Agency for International Development] for help on the Gambia River basin. The USAID

project was to advise an institution called, in English, the Gambia River Basin Development Commission.

It was an international organization comprising the countries of Senegal, The Gambia, Guinea, and Guinea Bissau. The four countries had organized the commission by an international treaty. It didn't have much money, but they had hopes of building some big dams, on the Gambia River which was their idea of how to solve their water problems. The Gambia River is one of these streams that's a roaring torrent in the wet season and a dried-up river bed in the dry season. The idea was that you'd build some dams and store the water in the wet season so that you'd be able to irrigate all through the year.

USAID had commissioned an immense study which had been done by the Center for Research on Economic Development at the University of Michigan. There was a series of five reports which stressed the environmental problems of these dams which were severe. They also had a lot of mapping done and were trying to wrap the whole thing up into a report which would help the OMVG (the French name of *Organization de Mise et Valeur de la Fleuve Gambia*) achieve its objectives. Ronco wanted me to go to Dakar as an expert on river basin planning, to try to reorient the plan into a more environmentally sound solution to the problems. I don't remember who had given them my name. It may have been Henry Caulfield. It sounded as if it would be an interesting assignment, and I thought I could do some good. It would require going to Dakar, traveling in the Gambia River basin, and then writing a report on how they should wind up this project to led to a more realistic development plan.

By that time we had almost run out of money at the Conservation Foundation for the groundwater study. It was funded by the Ford Foundation and the Joyce Foundation and several others. I never liked the business of going to foundations for money. To me it seemed like a conflict of interest to ask for money, part of which was going to be used to pay my own salary. The report was completed to the stage of refereeing the haggling over words between David Roderick, the chairman of U.S. Steel, Jay Hair, of the National Wildlife Federation, and the governors, Governor Babbitt, Governor [Thomas]Kean of New Jersey, and Governor [Anthony Scully] Earl of Wisconsin. There were about 15 members and they worked well together, but they were arguing over the final words of the recommendations. So it looked like there were greener pastures for me in Africa.

The Conservation Foundation was willing for me to go. Toby Clark had been very much involved in getting the groundwater policy study going before I came on board, and he took charge of completing the report, which was called "Groundwater, Saving the Unseen Resource." In the meantime, several other groundwater studies were made which tended to vitiate the Conservation Foundation report. The National Water and Power Alliance was making a study as was the Northeast-Midwest Study Conference, and the National Academy of Sciences was beginning work on a groundwater study using some of the same members that we had as staff representatives.

Senator [Dave] Durenberger later introduced legislation to implement the recommendations of the Conservation Foundation report, and there was a companion bill in the House, but they foundered on the rock of bureaucracy. The federal agencies involved in the federal research and monitoring efforts testified at hearings, but there was no agreement on a division of responsibilities, so the bill was never reported out of committee, to the best of my knowledge.

River Basin Planning, Dakar

So in 1986 I went over to Dakar for two or three weeks in the field, then came back to Washington to complete a report on a plan which should have led to a basin plan oriented much more toward development of groundwater rather than building big dams, some of which have turned into disaster areas in Africa.

The original plan that had been proposed by French and British engineering firms contemplated a large dam in each country except Guinea Bissau, with a number of smaller dams in the headwaters. It was somewhat like the Corps of Engineers' original plan for the Potomac River, which foundered because one of the dams would have flooded some of the Byrd family's apple orchards. And this was to help people that are barely into the 20th century. A lot of them are not living in the 20th century yet; they're living in mud huts with dirt floors and thatched roofs, and they're not ready for Western style irrigation. To make the irrigation pay, you would have to double crop and farm very intensively. The dam in the Gambia would have been a tidal barrier that would flood out and destroy the tidal irrigation on the Gambia River plain. This is rice irrigation in the upper reaches of the estuary where you still have fresh water half the year.

Anyway, I outlined a planning technique, possibly based too much on the way we do it in the United States, but which would get the local people involved in deciding how to go about developing their resources. They're not dumb people, but they're not academic people, and they don't do a lot of writing. Many of them don't speak French or English, but have their own language. But from what I'm told, they're quite intelligent and they do a good job of managing the resources they have. So I wrote a report with a schedule of public meetings throughout the basin and a plan for developing a number of small projects, mostly from groundwater. Essentially it would have the OMVG staff, with the assistance of USAID, do the same thing we would do if we were making a basin study in this country, only geared to those people and finding out what they wanted and what they were ready, willing, and able to do.

I found that there are many water resource developments in Africa including some in The Gambia, that have been built with Western money, and even though they did a good job building them, they fall into disrepair when the Westerners go home because the local people don't keep them up.

The USAID contract was to end in December 1987, and I went back to the Gambia River basin and to Dakar again in the fall of that year to complete the final report only to find that the OMVG staff hadn't done anything that I recommended, but were still trying to get money to build the big dams. I thought the program I had worked out was realistic, but the politicians running OMVG think in terms of building big dams. We've had the same problem in this country. We used to have a hard time getting full consideration of the social and environmental impacts of projects.

When you build a dam, you've got something you can see and sometimes a pretty lake-if you like lakes rather than flowing rivers-and you can put a plaque on the dam with a politician's name on it. Sometimes you can even put the name of the engineers who designed the dam, but particularly the local politicians love to dedicate dams. I don't know what's going to happen with the Gambia River, but it's in an area where the population is increasing faster than their resources are being developed. If the current increase of about 3 percent a year continues, the population is going to double in about 24 years. So I guess the six months I spent on that project were wasted, but it was a good experience for me.

After I finished the report on the Gambia River basin, I worked with a firm named Apogee Research on various projects for the Corps of Engineers and EPA. I got involved with Apogee Research primarily through working for the National Council of Public Works Improvement. I worked on a couple of their projects, one of which was with Apogee.

But my wife had developed a brain tumor in 1985, and after it was removed, I was spending a lot more time with her. We traveled as much as she was able to in 1986, but the tumor continued to grow, and she is now terminally ill. It's a question of time, and she is losing her ability to function, which is very depressing for me.

Family Life

Q: Let's talk just for a few minutes if you will about the personal side of your life. We've been talking about your professional career all this time.

I'd like you to talk about your wife a little bit, as you please, and also mention your children and what they're doing and so forth.

A: I guess I probably married the only person in the world that would put up with me. And this, interestingly enough, goes back to my love of maps. She loved maps too, and was a map collector. That's how I got to know her. We corresponded for years before we even lived in the same city. It was a very voluminous correspondence for almost five years which led to our falling in love. We were married in 1944. She's a very wonderful person. I guess everybody says this about their wife. At least I thought she was a very wonderful person, a very warm and friendly person. She was the librarian at Judson College in Marion, Alabama. She got her library degree at Louisiana State University, and then she worked in Seattle for the University of Washington Library after I persuaded her to come out to Seattle when I lived there. We had a lot in common, particularly our love of music and the theater and literature and people.

When we lived in Seattle she began climbing some of the minor peaks with me. She used to love climbing in the spring and early summer when you could slide down or glissade on the snow. Sometimes you can do a sitting glissade, sitting on a poncho and descending sometimes thousands of feet. It is really great fun

and it's a lot easier than walking down. So she enjoyed the mountains, but not so much the cliff climbing. When I came back to Washington and took up cliff climbing, or rock climbing as we called it, along the Potomac Gorge, she went out a few times and demonstrated that she could do it, but she had gotten a job as a children's librarian in the District of Columbia Public Library and so she gave up climbing. She never took up caving when I did. Caving came to me naturally because the climbers were exploring some of the difficult caves which required the use of climbing techniques. It was a lot cooler in the summer climbing underground than in the open, and that's what got me started.

My life was very much organized to keep some quality of life by spending as much time as I could in the outdoors. We did a lot of camping on weekends and on summer vacations in New England and eastern Canada. Kay eventually went to work for the Navy Department Library. She was working there when our first child was born, and she loved it so much that she really intended to go back to work.

Q: When was your first child born?

A: In 1955.

Q: What was her name?

A; Her name is Mary Jane. We fully expected her to be a boy because she was large and active in the womb. We were going to name her Clifford William after a very good friend and my father's. The doctor was positive she was going to be a boy because Kay is small, 5 feet 2 inches tall and her normal weight is about 105, and the doctor said, "You're going to have a boy. I can tell by the vigorous way that he is kicking." On the way to the hospital Kay says, "Maybe it will be a girl. What will we call it?" And I said, "Well, I don't know, how about Mary Ann or Mary Jane, just a good old-fashioned name," and then I said, "No, I wouldn't want to call her Mary Ann because we had a cow named Mary Ann on the farm." (Laughter)

So Mary Jane it is. And Mary Jane is just as wonderful as her mother. I guess everybody feels that their children are wonderful and she certainly is.

Q: What does she do now?

A: She started out to be a forester, because she loved those mountain trips in the West and we always had the forest rangers come in and talk. These were big trips with the Colorado Mountain Club or Sierra Club, so she started out at Westhampton College in Richmond, part of the University of Richmond, with the intention of going two years there, followed by three years at Duke in forestry.

Her first summer job, which she got herself, after we told her she would never get a summer job with the Forest Service because there's too much competition, was as a junior forestry aide out in the Six Rivers National Forest in northern California, headquartered at Gasquet near Crescent City. You should know about Crescent City because the Corps built a breakwater there using tetrapods.

She worked there one summer after her freshman year, and when she came home in the fall she decided that that was not what she wanted to do with her life. First, she got a lot of poison ivy even though she'd had shots. She was out there working with tree planting contractors, mostly Mexicans, and if you didn't watch them closely, they would put the little trees in upside-down and they didn't give a damn. They did not like being supervised by a girl. Also, she didn't like working by herself even though she had a wonderful time while she was there. So she decided to change her major to American Studies thinking in terms of working in museums or something like that.

That led her to get a job at HABS [Historic American Buildings Survey] the next summer, after her sophomore year. I never had to help her get a job. She always got her own jobs. She had worked after her high school graduation too, as a secretary at HABS, that's how she started. For her junior and senior years she transferred to the University of Delaware where they have all those museums, the Hagley Museum and Winterthur and others. Delaware had a good course in American Studies partly because of those museums.

This led her into the historic preservation field when she graduated in 1977. She graduated in three and a half years and was a valedictorian. She had a straight 4.0 average, both in high school and in college. She could have gone back to finish out her 4th year with some advanced work and graduated summa cum laude. But she decided to go to work, and she's at the same firm, Oehrlein and Associates, ever since she graduated. They do a lot of historic preservation work. Among their recent work is the repair of the Tomb of the Unknown

Soldiers at Arlington Cemetery. The Corps built that, and it has developed cracks that have to be repaired, so the Corps does have some problems with its construction.

Q: The Corps didn't make the cracks.

A: No, but the Corps designed and built the project, and it's apparently settled causing cracks.

Q: What about your other daughter?

A: The other daughter was born three years later. After Mary Jane was born, Kay didn't go back to work as she had planned. She decided it was more fun to play with the little baby. But after a year or so she went back to work part-time establishing a library for the American Automobile Association (AAA). When our second daughter, Rebecca Christina, was born in 1958, Kay stayed home full-time because by that time we felt that Mary Jane really needed her to be home. Mary Jane was in preschool by that time so Kay gave up her library work and she gave up her writing. Kay also had done some writing. She wrote a book about her mother's childhood. It was written as a children's book. Her mother grew up in Alabama in the 1890s, and when our babies came along, Kay took on the job of raising them as her primary responsibility. She loved being a mother, and I think one reason both daughters turned out so well is that they have a wonderful mother.

Q: What is your second daughter doing?

A: She takes after her father; she loves the outdoors. She went to Warren Wilson College near Asheville, North Carolina, and majored in biology. She spent one semester with the Ocean Research and Education Society, which was two months on a ship doing research on whales and cetaceans in Baja, California. She loved that and she really wanted to go on and do a master's degree in that field at the University of California at Santa Cruz. But when the time came, she also felt she'd had enough school, just as I had when I graduated from Johns Hopkins.

She had done a lot of volunteer work at the Smithsonian when she was in high school, which led her to a job doing research on bats at Barro Colorado Island in the Gatun Lake in the Panama Canal Zone. Barro Colorado Island is an

isolated ecosystem staying the way it was when the Gatun Lake was filled when the Panama Canal was built. There are many different species of bats, mostly fruit bats, living on the island. She worked there for the better part of a year, helping with a research project which has gone on for some years under the direction of the curator of mammals at the Smithsonian. She loved that work. And the job fit her perfectly because she is a night person. They started work at 4, 00 P.M., went out and collected some bats with nets and analyzed them, recording species, size, what they had been eating. I think she even identified a new species. She is an expert on bats.

At the end of a year, she came back and worked at the Animal Welfare League of Arlington. It was very difficult for her because she had to make decisions as to which animals to put down-unwanted dogs and cats-and this hurt her. So when she got a chance to go back to the Barro Colorado Island, she did. She left the animal shelter and went back to the Canal Zone for the Smithsonian for another year.

Since then she has her own business under the name Wildlife Matters. She helps people, homeowners and condominium livers, cope with bats, raccoons, possums, and any of the other wild animals that sometime disrupt suburban life. She puts caps on chimneys to keep out raccoons and all kinds of things like that. It's a small business and she is the sole proprietor, which made it possible for her to take six weeks to go back to Panama to help the Smithsonian with an inventory of the biota on two little islands on the Caribbean side of the upper end of the country of Panama. That's where she is now.

Q: Are either of your daughters married?

A: The elder daughter is married and no children. She was married to a young man and the marriage broke up after nine years, and now she's married again, just since September. Anyway, they've been supportive.

Now going back to my wife, Kay, four years ago she was diagnosed as having a brain tumor. It was operated on and it became obvious that it had developed over a long period of years because it was calcified. Her doctors thought she would be all right, that the cancer was eliminated by the removal of the tumor, and that they didn't even need to do radiation. They probably should have done the radiation because the tumor came back. She had the radiation which kept it under control for a while, and we've had several good years. But eventually

she started to lose her motor control, was losing her ability to walk, and she was losing memory of very common ordinary things. She had another operation 14 months ago to remove the cyst which had developed, but it was in a different form. It was in a more malignant form, and they told me at that point that she was terminally ill.

I didn't really believe it last January, a year ago, when they told me that. We put her in a nursing home where she underwent therapy to teach her to walk again with a walker, with the hope that we could bring her home. She's been there all this time, gradually losing function. They had to stop the therapy because her motor control just could not control her muscles. So we have to just leave her in the nursing home there. We visit her every day, at meal times. Both daughters have been very, very faithful along with me in visiting, so that she usually has two visits every day. We're not even sure now how much she understands. She had not been able to speak since about last June or July, and she had to be fed. My daughter's down there with her now. I missed going today probably for the first time. Yesterday I didn't have to go at noon because someone else was going, but I went in the evening.

When we can't get there, the nurses will feed her, but I just can't give her up. We've been together a long time. It's been 50 years since we started our friendship, and over 44 years of marriage.

Reflections

Q: Well, you've obviously had a very long and successful career and also a happy marriage and a happy home. In order to try to put things in focus, I always like to ask one last question, and the question is, looking back on this long successful career, do you think there's anything you'd like to change if you could? Is there anything that you look back on with particular regret or something that, if you had it to do all over again, you would do it differently?

A: I'm not sure. I think I told you that I was never in a position to plan my career. I walked into the Army Engineer Office and asked them for a job, and they hired me right away. Then I got my offers from the civil service exams, and since then I never really applied for any jobs-except during World War II I had tried to get into the Army Specialist Corps, and also when I found out what a wonderful place San Francisco was, I inquired about the possibility of getting

a job with the Federal Power Commission down there, but I never got to the point of really applying. I was at the Seattle District Office in connection with the flood control on the project I was working on and asked them if they needed anybody. I didn't really want to get into specifications, but they transferred me up there under the wartime rules that gave priority for war-related work.

So I guess I've just gone the way the wind has blown me, but I've had a lot of fun. When you ask if there are anything that I have regrets about, I guess I have to go back to my love of the outdoors. I tried to put it first, but not always successfully. I went every year for 25 years to climb in the West or in Switzerland or in Scotland or Canada. That has been a very important part of my life. I got obsessed with the idea of climbing mountains. I guess it really is an obsession, and so my greatest regret is that I wished I had climbed more mountains when I was still able to.

There were not many times that I missed an opportunity to go climbing but there were some. Climbing was probably more of a challenge for me because of having had polio, which left me with a weak leg, but it was something I could do. I sometimes feel if I had worked more diligently and organized my life better around my work, that I could probably have achieved a lot more. Yet, I think I have put the important things in my life first, which were family relationships and my love of the outdoors and music.

We haven't even discussed my love of opera, and that goes back to high school days when I was naughty and threw some spitballs or something in a music class. My music teacher, Murial Huffman, as penance for whatever I had done, made me give a report on the radio production of an opera. This must have been on a Saturday, long before Texaco took over the Metropolitan Opera broadcasts. The opera was *Tannhauser*. The assignment just turned something on inside me. My family was not really very musical. My mother wanted me to take piano lessons, but I never would. I wanted to spend my spare time outdoors. But when I listened to *Tannhauser*, I was just thrilled by it, and particularly by Wagner. Later when I heard *Die Meistersinger* with Hans Sachs hammering his shoes, I identified it with my grandfather.

I love symphonic music also, particularly the French romantic music. I was first introduced to that by Kay before she became my wife. In the first or second letter she wrote me, she told about how she loved the Franck Symphony

in D Minor, and then I discussed Berlioz, d'Indy, Chausson, and Debussy. I love their kind of music along with Wagnerian and, of course, who doesn't love Verdi and Rossini and Puccini. So I'm very, very emotionally involved with opera.

Q: Yes, I noticed the music on the piano so I guessed as much.

A: Those are remnants of better days, when Kay used to play the piano. It is very hard for me to change anything that Kay left around here. It all happened so suddenly, and I expected her to be back after the operation. I don't play the piano. Both daughters took piano lessons, and they could play reasonably well, but they gave it up and went on into other instruments. My musical interests revolve around symphony concerts and opera.

Getting back to your theme of regrets about things you might have done, I can't help wondering if there were anything that I could have done that would have kept Kay from getting to the stage she is in. Could we have sought help elsewhere, Johns Hopkins or the Mayo Clinic? We did go out to the National Institute of Health, but Kay's condition didn't fit any of their research parameters.

Sometimes I wonder if I should have left the government to seek greater remuneration in the private sector. In 1939 it was the way to go, but then during World War II, for example, the government salaries were kept way below everybody else's salary. But at that time if you had resigned, they said it would be accepted with prejudice. I don't know what that meant, and it probably wouldn't have meant anything if they needed you back. When the government salaries finally started to come up in the '60s, it was long overdue.

One reason Kay and I didn't have children until we were married 10 years was that we couldn't afford to. I was a P-3 when we got married which is the equivalent of about a GS-9, I guess. Kay was working at the library and we could barely make it in Seattle. When we came to Washington it was even worse, and I had gone up a grade. And so that was one reason we were married 10 years before Mary Jane was born. I was old fashioned, I guess, because I couldn't conceive of a family with children where the mother worked outside the home. So it took a long time before we were able to afford to have

children. Kay didn't have to work, but she enjoyed the part-time work for the Triple A which enabled us to have a full-time maid at home.

The things I have enjoyed most have been starting off from scratch with the National Water Commission and the Senate Select Committee, although with the Senate Select Committee I had the benefit of the preliminary work done by Ed Ackerman. I knew enough people and had enough contacts to get all the help I needed on the National Water Commission, and so it's hard for me to think of anything now that leaves me with any regrets, except for the mountains that I didn't climb. I'm sure that I'll think of some things that I wish I had said in this interview. Even though I have been very verbose in this interview, there are a lot of things that I have not covered. But you can't cover everything, and I feel embarrassed that I have been so verbose and that you've taken two full days to do the interview.

Q: It was well worth it. I thank you very much for your time.

Kay died on August 14, 1989, shortly after her 72nd birthday. Her book, *Run Eunice*, was published in 1990, and a book of her letters, *They Call Me Kay*, was published in 1994.